

# Seveso Expert Group

## Lubrizol accident and action plan

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# Description of the site



- **Lubrizol** = American group
- **Lubrizol France** = 3 production sites (Rouen, Le Havre and Mourenx), about ~ 500 employees  
Engines oils additives  
Additives and fluids for industrial lubricants and motor fuels  
Additives for surface coating products
- **Lubrizol Rouen** =, created in 1954, ~ 200 employees  
This site mainly produces additives for lubricants and paint gels  
Upper tier Seveso  
Land use planning : technological risk prevention plan (French PPRT) approved in 2014 (Rouen and Petit-Quevilly towns)

# Administrative status

## Upper tier Seveso

- Hazardous to the Aquatic Environment in category Acute 1 or Chronic 1 (2019 tonnes authorized, Seveso upper tier threshold is 200 t)
- Hazardous to the Aquatic Environment in category Chronic 2 (6807 tonnes authorized, Seveso upper tier threshold is 500 t )
- A substance with hazard statement EUH029: Contact with water liberates toxic gas diphosphorus pentasulphide (384 t authorized, Seveso upper tier threshold is 200 t)

The following substances were also authorized :

- 944 t of flammable liquids category 2 or 3
- 49 t of acute toxic category 3, inhalation route
- 122 t of acute toxic category 3, oral route

**Activity of chemical industry according to IED directive** (industrial emission directive), annex I, 4.1 Production of organic chemicals:

- (a) simple hydrocarbons
- (c) sulphurous hydrocarbons
- (d) nitrogenous hydrocarbons
- (e) phosphorus-containing hydrocarbons

# Accident of Lubrizol and Normandie Logistique sites

- **Lubrizol** = Upper tier Seveso  
This site mainly produces additives for lubricants and paint gels
- **Normandie logistique** = logistics warehouse



- **Accident : September 26<sup>th</sup> , 2019**

Development of a big burning materials area that spread the fire

# First consequences of the accident

- Human:
  - **No injuries** on / off site due to heat radiation or explosions
- **Environmental issue:**
  - People incommoded by the panache
  - Strong fallout of soot
  - Surface water pollution
- **Losses of products during the fire :**
  - 9000 tons of Lubrizol and Normandie logistique products burned (raw materials and finished products, magnesia, bauxite)
  - 15% of the Lubrizol site affected by the fire



# A few interesting points

- **Elaboration of the LUBRIZOL technological risk prevention plan**
  - actions of risk reduction at the source : LPG spheres moved
  - With LPG spheres between LUBRIZOL and Normandie logistique buildings, it would not have been possible to evacuate phosphorus pentasulfide and the radioactive sources
    - phosphorus pentasulfide = offsite dimensioning effects
- **Fire management**
  - No overaccident
  - Evacuation to the other end of the site of phosphorus pentasulfide
  - Provision of extinguishing means by neighboring companies
  - Reactive measures of PAH, dioxins and metals
- **Asbestos**
  - Mechanical (and not thermal) roof collapse : pieces of fiber cement (otherwise asbestos fibers)

# Post accident measures

- **Air analysis**

**Conventional parameters + benzene + dioxins**

**Collection of reports regarding smells**

**Asbestos measurements**

- **Soil treatment**

**Cleaning of the schools, cleaning the banks of the darses**

**Soil fallout of soot analyzes and instructions to observe**

**Monitoring among residents**

- **Surface water**

**Implementation of barrages on the Seine, analysis and treatment of polluted water**

- **Underground waters**

**Water quality controls for drinking water supply**

- **Psychological cell**

**Reception of people in distress**

- **Reception of emergencies**

- **Agricultural activities**

**Monitoring the impact of dust fallout on agricultural production**

- **Waste disposal & site cleaning**

**Establishment of a protocol for the packaging and disposal of waste site**

**Pumping of water and hydrocarbons present on the site**

# Many lessons learned

- Emergency preparedness and organization
- Environmental samples
- **Regulatory aspect of the post Lubrizol government action plan**
  - 7 new technical regulatory texts signed on September 2020
  - strengthen regulatory requirements regarding Seveso sites, warehouse storage of combustible materials and storage of flammable liquids.





# IBC storage

- Storage of flammable liquids in fusible IBC in the outdoor courtyard of Lubrizol site had impacts on the development of the fire

⇒ New regulation **prohibits fusible IBC storage of**

- **most flammable liquids (H224)**
- **H225 flammable liquids** in covered storage (unless qualification of extinguishing systems through the performance of a test campaign)

⇒ **Fusible IBC storage of other flammable liquids**

- New regulatory requirements regarding size and distance between storages
- Means of fire detection
- New regulatory requirements regarding size of retention

Non fusible IBC : retention = 50% of the volume  
Fusible IBC : retention = 100% of the volume



The goal is to limit the propagation in case of fire and avoid domino effects

# Seveso sites

- Lubrizol 's internal emergency plan worked well
- ⇒ Now, **operator's internal emergency plan** is mandatory for lower tier Seveso sites and not only for upper tier Seveso ( ~ 1300 Seveso establishments in France)
- ⇒ Regulation gives more details on **objectives of these internal emergency plans** (including means of sampling for decomposition products in case of major fire)
- ⇒ Minimum frequency of such exercises are reinforced (upper tier Seveso every year / lower tier Seveso every 3 years)

# Environmental issues

- During Lubrizol 's accident : difficulties to quickly know the materials that had burned and therefore the products to search in the environment
- ⇒ **A precise state of the materials stored in each part of the site** has to be available (one format for crisis management, one for the general population)
- ⇒ **A list of decomposition products** that may be emitted in the event of a major fire in the risk assessment document



# In progress topics

- Risk culture
- Environmental monitoring

***Thank you for your attention***

***Any questions?***

